Analisis resiko pajanan Diklormetan dan N-Heksan di laboratorium organik PT. X tahun 2012 = Health risk assessment of dichloromethane and n-Hexane Exposure in PT. X organic laboratory on 2012

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Abstrak

Analisis senyawa organik di laboratorium umumnya menggunakan pelarut organik untuk keperluan ekstraksi dan destilasi. Pelarut organik yang banyak digunakan adalah diklormetan dan n-heksan. Penggunaan diklormetan dan nheksan berisiko terhadap kesehatan pekerja laboratorium. Diklormetan adalah senyawa karsinogenik kategori 2 B menurut IARC, sedangkan pajanan heksan berisiko terhadap kerusakan sistem syaraf.

Penelitian ini untuk mengetahui sebaran konsentrasi diklormetan dan n-heksan di ruangan laboratorium, profil pajanan dan pengendalian yang sudah dilakukan dan risiko pajanan berdasarkan konsentrasi diklormetan dan n-heksan pada pengambilan sampel perseorangan, durasi pajanan dan hazard rating.

Hasil analisis konsentrasi diklormetan dan nheksan di seluruh ruangan laboratorium masih di bawah nilai rekomendasi treshold limit value dari American Conference of Governmental Industrial Hygienist. Sistem pengendalian pajanan secara administratif dan penggunaan alat pelindung diri sebagai pencegahan pajanan diklormetan dan n-heksan di laboratorium sudah memadai, namun diperlukan perbaikan untuk kondisi ventilasi di laboratorium sebagai bagian dari pengendalian teknis.

Hasil analisis risiko kesehatan menggunakan sistem risk rating adalah teknisi laboratorium 1, operator GC ECD dan asisten laboratorium memiliki risiko kesehatan medium sedangkan operator GC MS dan Teknisi laboratorium 2 memiliki risiko kesehatan rendah terhadap pajanan n-heksan. Teknisi laboratorium 1, teknisi laboratorium 2 ,operator GC MS dan asisten laboratorium memiliki risiko kesehatan medium sedangkan operator GC ECD memiliki risiko kesehatan rendah terhadap pajanan diklormetan.
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Generally organic coumpound analysis in laboratory need organic solvent for extraction and distilation purpose. Dichlormethane and n-hexane are a common organic solvent for laboratory analysis. The use of dichlormethane and n-hexane in laboratory have a high risk for employees health. Diclormethane is classify as 2 B group of carcinogenic material of IARC, while n-hexane could chronically cause a nervous system damage.

The purposes of this research are to determine the concentration of dichlormethane and n-hexane in workplace, the exposure and exist control profile in laboratory and to do chemical exposure risk assessment according to dichlormethane and n-hexane analysis from employees personal sampling, duration of exposure and hazard rating.

The result of dichlormethane and n-hexane analysis in workplace are still below the value of treshold limit

value of american conference of governmental industrial hygienist. Laboratory has a good administratif control and PPE control to prevent the exposure of dichlormethane and n-hexane but the enginering control need improvement for ventilation system.

The result of n-heksan exposure health risk assessment using risk rating system are laboratory technician 1, GC ECD operator, and laboratory assistance were categorized as medium risk, while GC MS operator and laboratory technician 2 were categorized as low risk. The result of diklormetan health risk assesment were laboratory technician 1, laboratory technician 2, GC MS operator and laboratory assistance are categorized as medium risk, while GC ECD operator was categorized low risk.